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Appl. No. 10/804,647
Reply to Non-Final Office Action of September 15, 2006

DEC 12 2006

REMARKS

Claims 1-10 are pending in this application. Claim 8 is amended. Reconsideration of this application and allowance of each of pending Claims 1-10 is respectfully requested.

Amendment of Claim 8

Claim 8 has been amended to correct formal errors.

Claims Rejections under 35 U.S.C. §102(b)

The Action rejects Claims 1-10 under 35 U.S.C. §102(b) for allegedly being anticipated by IEEE, 0018-9529/94, titled "Fuzzy-Set Approach to Select Maintenance Strategies of Multistate Equipment" ("Suresh"). Applicants respectfully submit that these claim rejections are overcome for reasons set forth below.

Claim 1 recites "... selecting a plurality of factors relevant to the remaining lifetime of the part, the plurality of factors including a number of semiconductor wafers that have been processed by the piece of semiconductor fabrication equipment since the part was installed in the piece of equipment; and estimating the remaining lifetime of the part by a fuzzy inference". Claim 1 is not anticipated by Suresh in view of the following arguments:

In short, claim 1 covers using factors including a number of processed semiconductor wafers that is relevant to the remaining lifetime of the part to estimate lifetime of the part.

In contrast, Suresh is directed to a method using a fuzzy-set approach to determine **maintenance strategy policies**, and not to determine the remaining lifetime of equipment. In its method, Suresh selects factors, i.e., **equipment conditions and remaining life** to determine maintenance strategy policies. In other words, Suresh **USES remaining life of equipment as a factor for determining maintenance strategy policies**. This is distinguished from the claimed invention which **ESTIMATES the remaining lifetime** of the (equipment) part. Suresh does not use a factor relevant to remaining lifetime of a part for determining the remaining lifetime of the part. Suresh uses equipment conditions including perfect functioning, fairly-well functioning, satisfactory functioning, rather-poor functioning and not functioning. The remaining life of

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equipment, i.e., the age of equipment, is directly selected for determining maintenance strategy policies. Nothing in Suresh's description or drawings shows that the factors include a number of semiconductor wafers that is relevant to the remaining lifetime of the part.

Further, Suresh merely intends to determine maintenance strategy policies (e.g., a major, medium or minor maintenance) that should be applied for equipment maintenance. Suresh thus uses factors including **equipment conditions and remaining life** (i.e., the age of the equipment) for determining maintenance strategy policies. For example, if the equipment is new and its condition is perfect functioning, a minor maintenance is selected. In contrast, if the equipment is old and its condition is rather-poor functioning, a major maintenance is selected. Since Suresh directly uses remaining lifetime of equipment as a factor in determining maintenance strategy policies, Suresh does not disclose or suggest modifying its method to select a number of semiconductor wafers which is relevant to the remaining lifetime of the part to estimate remaining lifetime of the part. Accordingly, Claim 1 is not anticipated by Suresh and the rejection of Claim 1 should be withdrawn. Claim 1 is therefore allowable for at least the reasons set forth above.

Claims 2-7 depend from Claim 1 and are also not anticipated by Suresh by virtue of dependency. The rejections of Claims 2-7 should be withdrawn and Claims 2-7 are therefore allowable.

Claim 8 recites "... fuzzy inference means for determining degrees of fulfillment of a plurality of rules based on a plurality of factors relevant to the remaining lifetime of the part, the plurality of factors including the number of semiconductor wafers that have been processed by the piece of semiconductor fabrication equipment since the part was installed in the piece of equipment; and a defuzzifier for estimating the remaining lifetime of the part based on the degrees of fulfillment of the plurality of rules."

As in arguments set forth above in connection with Claim 1, Claim 8 also recites estimating the remaining lifetime of the part based on factors including number of processed semiconductor wafers and is similarly distinguished from Suresh. Claim 8 is thus not anticipated by Suresh and the rejection of Claim 8 should be withdrawn. Claim 8 is therefore allowable.

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Claims 9 and 10 depend from Claim 8 and are therefore allowable via the virtue of dependency.

Based upon the foregoing, reconsideration and withdrawal of the rejections of Claims 1-10 are respectfully requested.

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Conclusion

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. Early notification to that effect is respectfully requested.

The Commissioner for Patents is hereby authorized to charge any additional fees or credit any excess payment that may be associated with this communication to deposit account 04-1679.

Respectfully submitted,

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